

REMARKS

Claims 1, 3-6 and 10-18 are pending in the subject application. No claims have been indicated to be allowable.

Applicants wish to thank Examiner Walter D. Griffin for the personal interview held on June 17, 2004 with George Yaluris, Ph.D and Applicants' Attorney, Beverly J. Artale, Esq. in the above-identified application. During the interview arguments were presented regarding the unexpected results of the claimed composition, e.g. the reduction in CO without increasing NOx. The Examiner stated that the evidence presented to support the patentability of Applicants' invention over the teachings of the Vasalos reference was not commensurate in scope with the claims since the evidence only mentioned a single alkaline earth metal, i.e. Mg. Applicants suggested that one skilled in the art would expect all alkaline earth metals to have a similar activity. Further, Applicants argued against the McCauley reference, i.e., the reference failed to disclose an oxygen storage material, and the Summers reference, i.e., the reference was non-analogous art. No agreement was reached.

35 USC 103

Claims 1, 3-6, 10-18 stand rejected under 35 USC 103(a) as being unpatentable over Vasalos et al. (USP 4,153,535). This rejection is respectfully traversed.

For reasons as stated in Applicants' Amendment dated January 21, 2004 and the accompanying Declaration by George Yaluris, PhD, said papers herein incorporated by reference, it is believed that Vasalos et al. fail to render obvious Applicants' invention as now claimed. In maintaining his rejection over Vasalos et al. the Examiner has suggested that the evidence provided in the Yaluris Affidavit is not commensurate in scope with the claimed invention. In particular, the Examiner notes that the evidence is based on a magnesium (Mg) containing composition but that the claims are not limited to Mg containing compositions.

Mg is a member of the group of the periodic table called “alkaline earths” or Group IIA (2A) of the Periodic Table, which also includes Be, Ca, Sr, Ba and Ra. Applicants have demonstrated the effectiveness of an alkaline earth component, e.g. Mg, in Applicant’s claimed composition to simultaneously control CO and NO_x emissions. The open and patent literature support the premise that like the members of the alkali metals group (1A or IA), the alkaline earth metals are commonly considered as having similar functionality in catalytic compositions. See for example, U.S. Patent Nos. 4,758,418; 4,471,070; 4,642,178 and 4,495,304, copies of which are attached. Consequently, it is believed that Applicants have provided an adequate basis for one skilled in the art to reasonably conclude that all of the alkaline earth metals as claimed would behave in the same or similar manner as Mg to simultaneously control CO and NO_x when used in amounts as claimed by Applicants.

Consequently, this rejection is improper and should now be withdrawn.

Claims 1, 3-5 and 10-18 stand rejected under 35 USC 103 (a) as being unpatentable over McCauley et al. (US Patent 6,117,813). This rejection is respectfully traversed.

Applicants’ invention has now been clearly defined to comprise novel NO_x removal compositions, a fluid cracking catalyst comprising said NO_x removal compositions and a method of using the NO_x removal compositions to simultaneously reduce NO_x and CO emissions during an FCC regeneration process. Generally, the composition of the invention comprises a component which contains (i) an acidic oxide support containing at least 50 weight percent alumina, (ii) about 1-10 parts by weight, measured as the metal oxide, of at least one alkaline earth metal, (iii) at least 1 part by weight of a transition metal oxide having oxygen storage capability, and (iv) at least 0.01 parts by weight of palladium, all parts by weight being per 100 parts by weight of the acidic oxide support.

McCauley et al. disclose a catalyst composition that promotes the combustion of carbon monoxide to carbon dioxide. The catalyst includes effective concentrations of Group VIII transition metal oxides, Group IIIB transition metal oxides, and Group

IIA alkaline earth metal oxides, desirably in combination with microspheroidal alumina. The catalyst composition as disclosed by McCauley et al. fails to disclose a transition metal oxide having oxygen storage capability.

The Examiner has suggested that a Group IIIB transition metal oxide would have oxygen storage capability. However, as shown in the attached Declaration by George Yaluris, PhD., one skilled in the art would not have expected the Group IIIB transition metal oxides to have any oxygen storage capability.

Consequently, McCauley et al fails to render obvious Applicants' invention as claimed. Accordingly, this rejection is improper and should now be withdrawn.

Claim 6 stand rejected under 35 USC 103(a) as being unpatentable over McCauley et al.(US Patent 6,117,813) and further in view of Summers (US Patent 4,923,842). This rejection is traversed.

The Examiner has admitted that the McCauley et al. reference fails to disclose the use of cerium oxide. To cure the deficiencies of McCauley et al. the Examiner has relied on the teachings of the Summers reference to show that both lanthanum and cerium oxides have oxygen storage capabilities.

The law is clear that one may rely on extrinsic evidence to educate the Examiner about the common knowledge of those skilled in the art. To this end, the Declaration by George Yaluris has clearly shown that the available art, the requirement of multivalency for oxygen storage capability, and the published properties of the elements, clearly indicate to one skilled in the art that lanthanum oxide as well as the other elements of Group IIIB of the Periodic Table cannot be an oxygen storage component. Consequently, it would not have been obvious to one skilled in the art to substitute a Group IIIB transition metal as taught by McCauley et al. with an oxygen storage transition oxide such as ceria, as taught by the Summers reference.

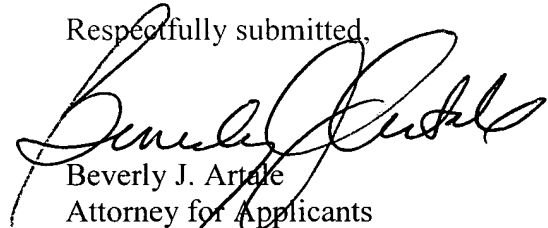
This position is especially held since the McCauley et al. reference relates to an FCC catalyst composition while the Summers reference relates to a catalyst composition for treating automotive exhaust. It is a well recognized principle of Patent Law that a person of ordinary skill in a particular art, e.g. FCC, will not likely

know about prior art in a different and unrelated field, e.g. automotive exhaust. Consequently, it is believed that the Summers reference is non-analogous art and fails to render obvious Applicants invention as claimed.

For reasons as stated herein above, Applicant's invention is patentable over either of the McCauley et al. or Summers reference alone or in combination. Consequently, this rejection is improper and should now be withdrawn.

Accordingly, for reasons as stated hereinabove, it is believed that the prior art of record fails to render obvious Applicants' invention as now claimed. Allowance of Claims 1, 3-6 and 10-18 is therefore respectfully requested.

Respectfully submitted,



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